

Proposal for Testing of KEK Convection Absorber

Charge:

- Establish a cryogenic facility to allow performance analysis for a hydrogen absorber
- Establish a helium distribution system be used for hydrogen gas liquefaction - 6.2 liq liters of hydrogen
- Provide for safe test area which is based on Fermi Guideline for LH2 Targets

Proposal

- Use Meson Cryogenic Helium system as refrigerant @ 17K
- Build an outdoor area to house KEK test cryostat which provides weather proofing and protection to personal as protection from animals
- Provide barrier to protect people and capital equipment in the case of an emergency

Safety Issues to Address

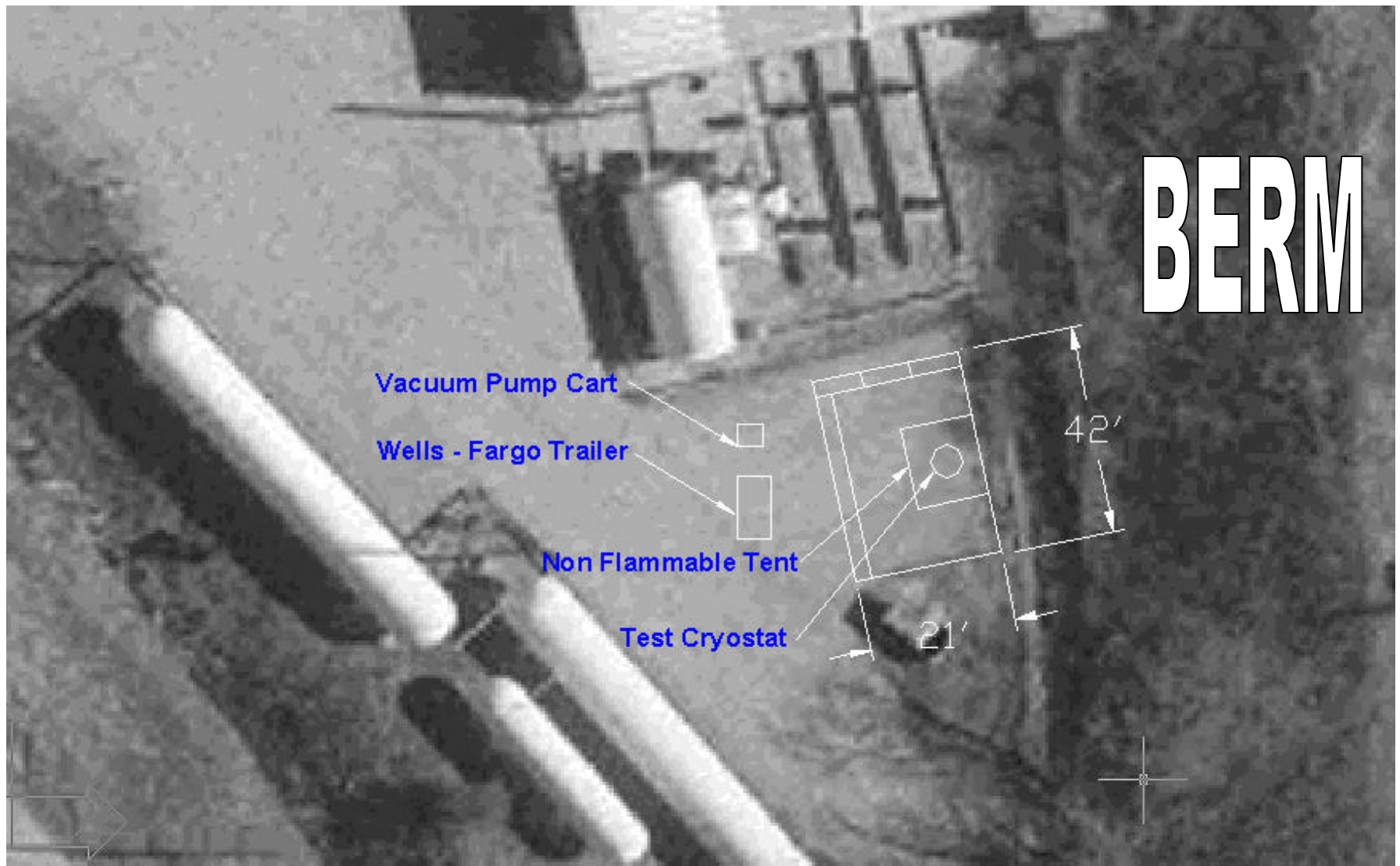
- KEK cryostat must meet FERMILAB ES&H standards and will be required to endure a Safety review
 - Engineering note for vessel, reliefs, and vacuum info
- System must be reviewed by Cryogenic panel-- What if, FMEA
- System must adhere to Guidelines for LH2 Target designs

Includes:

Electrical standards and Intrinsic safety

Proposing Mobile trailers outside of safe area for electrical distribution, DAQ, vacuum pumping.

Use of Safety Controls --- we have Quadlog PLC and will house inside of Meson Cryo Building



Arial View of Meson Area with Proposed Setup

Proposed Structures without Roof on Herculite Inner House

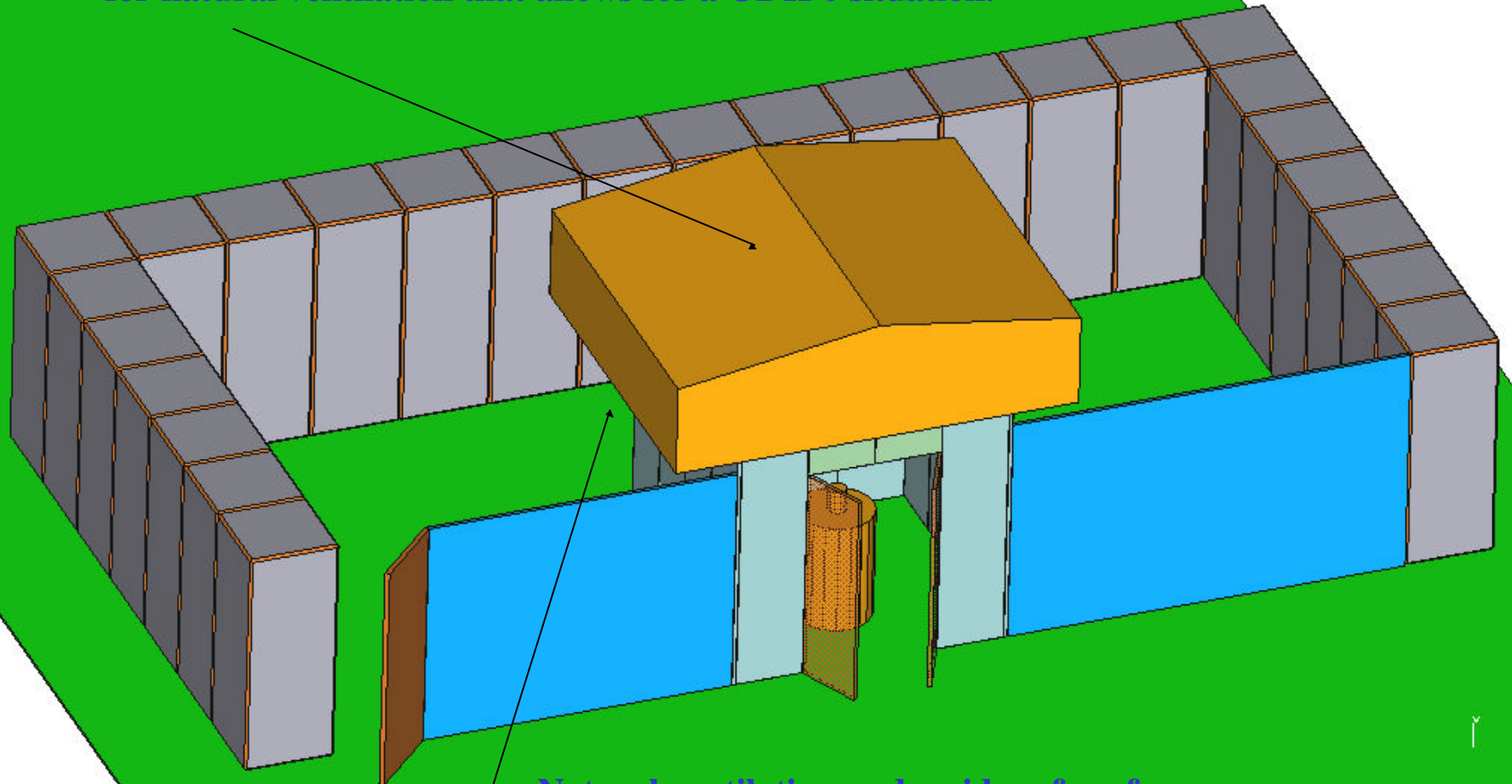
Shield block wall. Each block is 3 x 3 x 7.5 ft
Weighting 10150 lbs.

10 foot cube made of
translucent herculite and
unistrut structure with doors
that can be used as "relief
wall"

Herculite Room at Fermilab's Lab 3



Herculite or Lexan roof that is translucent. Open under 3 sides for natural ventilation that allows for a ODH 0 situation.



Natural ventilation under sides of roof.

Mobile Carts for Power, DAQ, and Vacuum Pumping



Costs for Setup

- Herculite and unistrut structure \$5K
 - Cryogenic transfer piping \$3K
 - Hydrogen Manifold for Gas \$3K
 - Miscellaneous Cryogenic Instrumentation \$10K
 - ODH, Flammable Gas install \$5K
 - Piping for venting hydrogen and helium \$2K
 - Riggers to Move future MTA helium Tank \$2K
- Approx Total \$30K

Contingencies

- Riggers for blocks \$5K
- Electricians for 1 week \$5K
- FESS \$5K